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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/978,523	10/16/2001	Thomas N. Palmer	HLC-106-A	5046

7590 03/08/2004

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EXAMINER

BARAN, MARY C

ART UNIT	PAPER NUMBER
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2857

DATE MAILED: 03/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/978,523

Applicant(s)

PALMER ET AL.

Examiner

Mary Kate B Baran

Art Unit

2857

pm

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 October 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 11-23, 25 and 26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-26 are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) ✓
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) ✓
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. This application contains claims directed to the following patentably distinct species of the claimed invention:

- I. The species best illustrated by Figure 7 (claims 1-10 and 24).
- II. The species best illustrated by Figure 1 (claims 11-18, 25 and 26).

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable.

Claims 19-23 link the species of groups I and II, if any of 19-23 shall be deemed to having allowable subject matter, the species shall be rejoined.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

2. During a telephone conversation with Thomas Young on 24 February 2004 a provisional election was made with traverse to prosecute the invention defined by group I, claims 1-10 and 24. Affirmation of this election must be made by applicant in replying to this Office action. Claims 11-23, 25 and 26 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Specification

3. The disclosure is objected to because of the following informalities:

- (a) On page 2 [0005] line 4, "problems" should be – problem –.
- (b) On page 4 [0012] line 2, "non-ferro magnetic" should be – non-ferromagnetic –.
- (c) On page 8 [0029] line 3, "FIGS 1and 5" should be – FIGS 1 and 5 –.
- (d) On page 9 [0035] line 7, "fo" should be – of –.
- (e) On page 10 [0037] line 2, "transducer" should be – transducers –.
- (f) On page 10 [0041] line 1 "hanger54" should be – hanger 54 –.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-3, 6-8 and 24 are rejected under 35 U.S.C. 102(e) as being anticipated by Eklund (U.S. Patent No. 6,392,584).

Referring to claim 1, Eklund teaches an apparatus for evaluating electric motors of the type having a rotatable armature mounted within a rigid housing according to noise characteristics generated by said motors during operation thereof (see Eklund, column 3 lines 40-44) comprising: a support for receiving motors in a test location (see Eklund, column 3 lines 49-52); an electrical connection proximate said location for placing motors in said location in an operating condition (see Eklund, column 3 lines 33-

37); a transducer adapted to be disposed in exclusive energy transfer relation with a motor housing in said test location and responsive to the noise characteristics produced during operation of a motor when so disposed to produce an output signal quantity (see Eklund, column 4 lines 8-19); and a processor for receiving and analyzing said signal quantity as a basis for identifying unacceptably noisy motors (see Eklund, column 5 lines 39-41).

Referring to claim 2, Eklund teaches that the transducer is a piezoelectric pickup (see Eklund, column 4 lines 24-28).

Referring to claim 3, Eklund teaches that the piezoelectric pickup includes a magnet for attaching the pickup to a ferromagnetic motor housing (see Eklund, column 4 lines 2-7).

Referring to claim 6, Eklund teaches an apparatus for testing window regulator motors of a type having a rotatable armature mounted within a rigid housing according to noise characteristics produced by said motors during operation thereof (see Eklund, column 3 lines 40-44) comprising: a support for receiving window regulator motors in a test location (see Eklund, column 3 lines 49-52); an electrical connection for connecting said window regulator motors to a source of electrical energy to operate same (see Eklund, column 3 lines 33-37); a transducer disposed in exclusive energy transfer relationship with the motor housing when in the test location and responsive to the noise

characteristics produced by the motor housing to produce an output signal quantity (see Eklund, column 4 lines 8-19); and a processor connected to receive said signal quantity for deriving data therefrom to be used as a basis for sorting acceptable from unacceptable motors (see Eklund, column 5 lines 39-41).

Referring to claim 7, Eklund teaches that the transducer is a piezoelectric pickup (see Eklund, column 4 lines 24-28).

Referring to claim 8, Eklund teaches that the piezoelectric pickup includes a magnet for attaching the pickup to a ferromagnetic motor housing (see Eklund, column 4 lines 2-7).

Referring to claim 24, Eklund teaches a method for evaluating electric motors of the type having a rotatable armature mounted within a rigid housing according to noise characteristics generated by the motor during operation thereof (see Eklund, column 3 lines 40-44) comprising the steps of: supporting the electric motor in a test location (see Eklund, column 3 lines 49-52); connecting the electric motor to a source of electrical power to operate same (see Eklund, column 3 lines 33-37); aligning a transducer in energy transfer relationship with the motor housing and producing a signal quantity having a primary periodic component (see Eklund, column 4 lines 8-19) based on the rotation speed of the motor armature and other periodic components resulting from motor characteristics producing noise (see Eklund, column 7 line 64 – column 8 line 14);

and processing the signal quantity to identify unacceptably noisy motors (see Eklund, column 5 lines 39-41).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eklund (U.S. Patent No. 6,392,584) in view of Thomsen (U.S. Patent No. 6,639,411).

Referring to claims 4 and 9, Eklund teaches all the features of the claimed invention except for a transport mechanism including a clamp for positioning the piezoelectric pickup proximal a motor housing and releasing the pickup when in contact with the motor housing.

Thomsen teaches a transport mechanism including a clamp for positioning the piezoelectric pickup proximal a motor housing and releasing the pickup when in contact with the motor housing (see Thomsen, column 3 lines 7-22).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Eklund to include the teachings of Thomsen because clamping and releasing the transducer would have allowed the skilled artisan to detect motor structure damage (see Thomsen, column 2 lines 61-64).

6. Claims 5 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eklund (U.S. Patent No. 6,392,584) in view of Wang (U.S. Patent No. 4,715,706).

Referring to claim 5, Eklund teaches all the features of the claimed invention except that the transducer comprises a laser disposed proximal the test location and having an output beam adapted to be aimed at a motor housing in the location, the processor comprising means for deriving Doppler-shift related frequency components from said signal quantity as a result of periodic movement of a motor housing toward and away from the laser.

Wang teaches that the transducer comprises a laser disposed proximal the test location and having an output beam adapted to be aimed at a motor housing in the location (see Wang, column 3 lines 38-46), the processor comprising means for deriving Doppler-shift related frequency components from said signal quantity as a result of periodic movement of a motor housing toward and away from the laser (see Wang, column 3 lines 47-55).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Eklund to include the teachings of Wang because using a laser would have allowed the skilled artisan to measure displacement with better accuracy (see Wang, Abstract lines 1-5).

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


- (a) Ottesen et al. teach an adaptive compensation for arm electronics amplification circuitry of a disk drive system.
- (b) Ben-Romdhane teaches condition based monitoring by vibrational analysis.
- (c) Kliman et al. teach an electrical motor monitoring system and method.
- (d) Smith et al. teach electronic cancellation of DC motor noise.
- (e) Board et al. teach a method and apparatus for predictive diagnosis of moving machine parts.
- (f) Putman et al. teach a bidirectional variable reluctance actuator and system for active attenuation and system for active attenuation of vibration and structure borne noise utilizing same.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mary Kate B Baran whose telephone number is (571) 272-2211. The examiner can normally be reached on Monday - Friday from 8:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S Hoff can be reached on (571) 272-2216. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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